CLAIMS.

1. An intestine dysfunction treatment apparatus, comprising an electric stimulation device implantable in a patient, who suffers from intestine dysfunction, characterized in that the stimulation device comprises electric conductors adapted to directly engage with a muscle that directly or indirectly affects the transportation of the content of the patient's intestines, to electrically stimulate the muscle to increase the tonus thereof.

2. An apparatus according to claim 1, further comprising a source of energy, and a control device controllable from outside the patient's body for controlling the source of energy to release energy for use in connection with the power of the stimulation device, when the stimulation device is implanted.

3. An apparatus according to claim 2, wherein the source of energy comprises an electric source of energy and the control device is adapted to supply the stimulation device with electric energy from the electric source of energy.

4. An apparatus according to claim 3, wherein the electric source of energy is adapted to provide a current through the electric conductors, and the control device is adapted to control the electric source of energy to release electric energy such that the intensity of the current through the electric conductors amounts to a predetermined value.

5. An apparatus according to claim 4, wherein the control device is adapted to control the electric source of energy to release electric energy in the form of an alternating current.

6. An apparatus according to claim 3, wherein the control

device controls the stimulation device.

7. An apparatus according to claim 6, wherein the control device is adapted to control the stimulation device to vary the intensity of the electric stimulation of the muscle over time.

8. An apparatus according to claim 7, wherein the control device is controllable from outside the patient's body to control the stimulation device to change the intensity of the electric stimulation of the muscle so that the muscle tonus is changed.

9. An apparatus according to claim 8, wherein the muscle comprises the anal sphincter, and the control device is adapted to continuously supply the stimulation device with electric energy from the electric source of energy to keep the anal sphincter closed, except when the patient wants to defecate.

10. An apparatus according to claim 9, wherein the control device is controllable by the patient to control the stimulation device to increase the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is increased, when the patient feels rectum contractions.

11. An apparatus according to claim 9, wherein the control device is controllable by the patient to control the stimulation device to cease supplying the stimulation device with electric energy when the patient wants to defecate.

12. An apparatus according to claim 9, wherein the control device is controllable by the patient to control the stimulation device to decrease the intensity of the electric stimulation of the anal sphincter so that the tonus of the anal sphincter is decreased, when the patient wants to release gas from the rectum.

13. An apparatus according to claim 6, wherein the muscle

is capable of contracting the patient's large bowel in a wave-like manner for transporting the faeces therein, and the control device is adapted to control the electric source of energy to momentarily supply the stimulation device with electric energy to cause the muscle to momentarily contract the bowel in said wave-like manner.

14. An apparatus according to claim 13, wherein the control device is controllable by the patient to power the stimulation device to cause the muscle to contract the large bowel in said wave-like manner, in order to avoid constipation.

15. An apparatus according to claim 1, further comprising at least one implantable sensor for sensing at least one physical parameter of the patient.

16. An apparatus according to claim 15, wherein the muscle comprises the anal sphincter and the sensor is adapted to sense as the physical parameter the pressure against the anal sphincter exerted by the faecal passageway.

17. An apparatus according to claim 16, wherein the electric stimulation device is adapted to increase the stimulation intensity on the anal sphincter in response to the sensor sensing an abrupt increase in pressure caused by rectum contraction.

18. An apparatus according to claim 15, wherein the muscle comprises the anal sphincter and the sensor is adapted to sense as the physical parameter the patient's orientation.

19. An apparatus according to claim 18, wherein the electric stimulation device is adapted to decrease the stimulation intensity on the anal sphincter in response to the sensor sensing that the patient is lying.

20. An apparatus according to claim 15, wherein the sensor comprises a pressure sensor for directly or indirectly sensing as the physical parameter the pressure in the faecal passageway of the patient.

21. An apparatus according to claim 15, further comprising a control device adapted to control the stimulation device in response to signals from the sensor.

22. An apparatus according to claim 21, wherein the control device comprises an internal control unit implantable in the patient, the internal control unit controlling the stimulation device in response to signals from the sensor.

23. An apparatus according to claim 22, wherein the control device comprises an external control unit outside the patient's body, the external control unit controlling the stimulation device in response to signals from the sensor.

24. An apparatus according to claim 23, wherein the external control unit stores information on the physical parameter sensed by the sensor and is manually operated to control the stimulation device based on the stored information.

25. An apparatus according to claim 15, further comprising at least one implantable sender for sending information on the physical parameter sensed by the sensor.

26. An apparatus according to claim 6, wherein the control device comprises an internal control unit implantable in the patient for controlling the stimulation device.

27. An apparatus according to claim 26, wherein the internal control unit is programmable.

28. An apparatus according to claim 27, wherein the control device comprises an external control unit intended to be outside the patient's body, the internal control unit being programmable by the external control unit.

29. An apparatus according to claim 27, wherein the internal control unit is programmable for controlling the stimulation device over time.

30. An apparatus according to claim 29, wherein the internal control unit controls the stimulation device over time in accordance with an activity schedule program.

31. An apparatus according to claim 29, wherein the internal control unit comprises a microprocessor.

32. An apparatus according to claim 28, wherein the external control unit loads the internal control unit with data in accordance with a loading mode only authorised for a doctor.

33. An apparatus according to claim 28, wherein the external control unit controls the internal control unit in accordance with a doctor mode only authorised for a doctor.

34. An apparatus according to claim 28, wherein the external control unit controls the internal control unit in accordance with a patient mode permitted for the patient.

35. An apparatus according to claim 2, wherein the source of energy is intended to be external to the patient's body when the stimulation device is implanted therein, and the control device is adapted to control the external source of energy to release wireless energy for use in connection with the power of the stimulation device.

36. An apparatus according to claim 35, further comprising an energy storage device implantable in the patient for storing the wireless energy released from the external source of energy.

37. An apparatus according to claim 36, wherein the energy storage device comprises an accumulator.

38. An apparatus according to claim 37, wherein the accumulator comprises an electric accumulator.

39. An apparatus according to claim 38, wherein the electric accumulator comprises at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

40. An apparatus according to claim 35, wherein the control device is adapted to control the external source of energy to release wireless energy for direct use in connection with the power of the stimulation device.

41. An apparatus according to claim 40, further comprising an activatable source of energy implantable in the patient, wherein the implantable source of energy is activated by wireless energy released from the external source of energy, to supply energy which is used in connection with the power of the stimulation device.

42. An apparatus according to claim 40, wherein the control device is adapted to control the external source of energy to intermittently release wireless energy in the form of a train of energy pulses for direct use in connection with the power of the stimulation device.

43. An apparatus according to claim 42, wherein the control device is adapted to control the source of energy to release

electric energy, and further comprising an implantable capacitor for producing the train of energy pulses from the released energy.

44. An apparatus according to claim 43, wherein the capacitor has a capacity less than 0,1 μF.

45. An apparatus according to claim 1, further comprising a battery implantable in the patient for supplying electric energy to implantable electric energy consuming components of the apparatus.

46. An apparatus according to claim 2, wherein the source of energy comprises an implantable internal source of energy.

47. An apparatus according to claim 46, wherein the internal source of energy comprises an electric source of energy.

48. An apparatus according to claim 47, wherein the internal electric source of energy comprises at least one accumulator, at least one capacitor or at least one rechargeable battery, or a combination of at least one capacitor and at least one rechargeable battery.

49. An apparatus according to claim 1, further comprising a switch implantable in the patient for directly or indirectly switching the power of the stimulation device.

50. An apparatus according to claim 49, further comprising an internal electric source of energy implantable in the patient for supplying electric energy to the stimulation device, wherein the switch directly or indirectly affects the supply of electric energy from the internal electric source of energy.

51. An apparatus according to claim 50, wherein the switch

switches between an "off" mode, in which the internal electric source of energy is not in use, and an "on" mode, in which the internal electric source of energy supplies electric energy to the stimulation device.

52. An apparatus according to claim 35, wherein the switch is operable by the wireless energy released from the external source of energy.

53. An apparatus according to claim 52, wherein the control device controls the external source of energy to release the wireless energy.

54. An apparatus according to claim 2, wherein the control device comprises a wireless remote control.

55. An apparatus according to claim 50, wherein the control device comprises a wireless remote control for controlling the internal electric source of energy.

56. An apparatus according to claim 55, wherein the switch is operable by the wireless energy from the external source of energy to switch between an "off" mode, in which the internal electric source of energy and remote control are not in use, and a "standby" mode, in which the remote control is permitted to control the internal electric source of energy to supply electric energy for the operation of the stimulation device.

57. An apparatus according to claim 50, further comprising an energy transforming device implantable in the patient for transforming the wireless energy into storable energy and an energy storage device implantable in the patient for storing the storable energy.

58. An apparatus according to claim 57, wherein the switch

is operable by energy from the implantable energy storage device to switch between an "off" mode, in which the internal electric source of energy is not in use, and an "on" mode, in which the internal electric source of energy supplies electric energy to the stimulation device.

59. An apparatus according to claim 58, wherein the control device controls the energy storage device to operate the switch.

60. An apparatus according to claim 59, wherein the control device comprises a wireless remote control.

61. An apparatus according to claim 50, further comprising an energy transforming device implantable in the patient for transforming the wireless energy into electric energy, which is stored by the internal electric source of energy.

62. An apparatus according to claim 61, wherein the switch switches from an "off" mode, in which the internal electric source of energy is not in use, to an "on" mode, in which the internal source of electric energy supplies energy to the stimulation device.

63. An apparatus according to claim 62, wherein the control device controls the switch to switch between the "on" and "off" modes.

64. An apparatus according to claim 63, wherein the control device comprises a wireless remote control.

65. An apparatus according to claim 1, further comprising an external data communicator intended to be outside the patient's body and an internal data communicator implantable in the patient for communicating with the external communicator, wherein the internal data communicator feeds data related to the

patient back to the external data communicator or the external data communicator feeds data to the internal data communicator.

66. An apparatus according to claim 65, wherein the internal data communicator feeds data related to the stimulation device.

67. An apparatus according to claim 65, wherein the internal data communicator feeds data related to at least one physical signal of the patient.

68. An apparatus according to claim 1, wherein the control device controls the source of energy to release energy for a determined time period.

69. An apparatus according to claim 1, wherein the control device controls the source of energy to release energy in a determined number of energy pulses.

70. An apparatus according to claim 1, wherein the control device is adapted to control the source of energy to release energy in a non-invasive manner.

71. An apparatus according to claim 2, wherein the control device comprises a wireless remote control for transmitting at least one wireless control signal for controlling the stimulation device.

72. An apparatus according to claim 71, wherein the remote control is capable of obtaining information on the condition of the stimulation device when the stimulation device is implanted and to control the stimulation device in response to the information.

73. An apparatus according to claim 71, wherein the wireless remote control comprises at least one external signal transmitter

or transceiver and at least one internal signal receiver or transceiver implantable in the patient.

74. An apparatus according to claim 71, wherein the wireless remote control comprises at least one external signal receiver or transceiver and at least one internal signal transmitter or transceiver implantable in the patient.

75. An apparatus according to claim 71, wherein the remote control transmits a carrier signal for carrying the control signal.

76. An apparatus according to claim 75, wherein the carrier signal is frequency, amplitude or frequency and amplitude modulated.

77. An apparatus according to claim 75, wherein the carrier signal is digital, analogue or digital and analogue.

78. An apparatus according to claim 75, wherein the control signal used with the carrier signal is frequency, amplitude or frequency and amplitude modulated.

79. An apparatus according to claim 71, wherein the control signal comprises a wave signal comprising one of a sound wave signal including an ultrasound wave signal, an electromagnetic wave signal including an infrared light signal, a visible light signal, an ultra violet light signal and a laser light signal, a micro wave signal, a radio wave signal, an x-ray radiation signal, and a gamma radiation signal.

80. An apparatus according to claim 71, wherein the control signal comprises an electric, magnetic or electric and magnetic field.

81. An apparatus according to claim 71, wherein the control signal is digital, analogue or digital and analogue.

82. An apparatus according to claim 81, wherein the remote control transmits an electromagnetic carrier wave signal for carrying the digital or analogue control signal.

83. An apparatus according to claim 71, wherein the control signal is transmitted in pulses by the wireless remote control.

84. An apparatus according to claim 35, further comprising an implantable stabiliser for stabilising the energy released by the control device.

85. An apparatus according to claim 84, wherein the energy released by the control device comprises electric energy and the stabiliser comprises at least one capacitor.

86. An apparatus according to claim 40, wherein the wireless energy comprises electromagnetic waves excluding radio waves.

87. An apparatus according to claim 35, wherein the wireless energy comprises a signal.

88. An apparatus according to claim 35, further comprising an implantable energy transforming device for transforming wireless energy directly or indirectly into electric energy for the power of the stimulation device.

89. An apparatus according to claim 88, wherein the energy transforming device transforms the wireless energy in the form of sound waves into electric energy for the power of the stimulation device.

90. An apparatus according to claim 89, wherein the energy transforming device transforms the wireless energy in the form of sound waves directly into electric energy.

91. An apparatus according to claim 89, wherein the energy transforming device comprises a capacitor.

92. An apparatus according to claim 91, wherein the capacitor is adapted to produce electric pulses from the transformed electric energy.

93. An apparatus according to claim 1, wherein the stimulation device is embedded in a soft or gel-like material.

94. An apparatus according to claim 1, wherein the stimulation device is embedded in a silicone material having hardness less than 20 Shore.

95. An apparatus according to claim 1, wherein the muscle comprises the anal sphincter or extends around a portion of the bowels or rectus abdominis, the stimulation device comprises a band for application around the anal sphincter or the portion of the bowels or rectus abdominis, and the band is provided with the electric conductors for engaging the muscle.

96. An apparatus according to claim 1, wherein the electric conductors comprise hooks to secure the electric conductors on the muscle.

97. An apparatus according to claim 96, wherein the hooks are to be inserted into the muscle.

98. An apparatus according to claim 8, wherein the muscle comprises the rectus abdominis of the patient who has iliostomy, jejunostomy, colostomy or rectostomy therethrough, and the

control device is adapted to continuously supply the stimulation device with electric energy from the electric source of energy to stimulate the rectus abdominis to close the patient's intestines, except when the patient wants to defecate.

99. An apparatus according to claim 8, wherein the muscle comprises the wall muscle of the intestines of the patient who has iliostomy, jejunostomy, colostomy or rectostomy, and the control device is adapted to continuously supply the stimulation device with electric energy from the electric source of energy to stimulate the wall muscle of the intestines to close the intestines, except when the patient wants to defecate.